

ABSTRACT

In accordance with the first object of this invention soluble derivatives of sexithiophene in which terminal carbons are substituted with various polar groups such as phosphonic esters, phosphonic acids, phosphonates, carboxylic acids, carboxylates, amines, amides, carbamates, and alcohols, each separated from the terminal thiophene rings by one or more methylene groups, are synthesized. An TFT device in accordance with the second objective of this invention employs films of the above sexithiophene derivatives as the semiconducting component. These organic semiconductors are dissolved in common organic solvents and applied to the surface of a substrate using inexpensive, low-temperature solution-based processing such as spin-coating, dip-coating, drop-casting, or microcontact printing.